AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Wilson Memorial Book Collection
Division of Agricultural Economics

MINNESOTA
farm business
NOTES

NO. 428 ST. PAUL CAMPUS, UNIVERSITY OF MINNESOTA April 1961

SOME BASIC PROBLEMS IN AGRICULTURE

H. R. Jensen

Currently, we read and hear much about income and overproduction problems in agriculture. Farm income is regarded as relatively unfavorable, and farm production or supply grows more rapidly than demand. The main purpose of this article is to outline some of the basic forces underlying these conditions in agriculture. This background is necessary because intelligent adjustments are unlikely to be made either at the farm or national level unless we understand the main forces contributing to the present situation. (At the conclusion of this article, we are introducing a study which provides Minnesota dairy farmers with some concrete guidelines to the future.)

Growth of Our Nation's Economy

Over the years, our nation's economy has grown and it continues to grow. For instance, during the last 10 years, national income (one measure of economic growth) has increased on an average between 6 and 7 percent per year. Income per person (another measure of economic growth) has increased about 4 percent per year; the increase here is at a somewhat slower rate because population has been increasing.

Even though income per person increased over the past decade, total food consumption per person in the United States remained unchanged. The amount of food a person can eat is limited by the capacity of his stomach, and our nation's consumers, for the most, have been eating up to this limit. However, as per capita incomes increase, consumers spend more for some foods and less for others. *They also spend more for packaging and other services that go along with food.*

Thus, as economic growth takes place —as real income or purchasing power per person increases—we have a situation in which consumers spend their increases in income, not for more food, *but for nonfood products*—radios, television sets, cars, etc.; *for services that accompany foods*—packaging, freezing, canning, eating in restaurants, etc.; and *for services in the form of education,* roads, etc. In short, we have a situation where increases in the total demand for food are limited by the rate at which our population grows, while increases in demand for other goods and services come not only from population growth but also from increases in income per person. Consequently, as the nation's economy has grown, agriculture's relative contribution to the national income has declined, and further decline can be expected as economic growth continues. This change in the relative position of agriculture is characteristic of a growing economy. As per capita incomes increase, smaller and smaller portions of these increases are spent for food while larger and larger portions are spent for nonfood goods and services. The result is rising living levels for the nation's people.

A basic fact in our agricultural situation, then, is that further growth in the domestic demand for food must come primarily from population growth while growth in the demand for many nonfood products and services comes not only from population growth but also from per capita income increases.

This fact brings forth another consequence of economic growth for agriculture. As per capita incomes increase, millions of consumers are saying through the market that they want more radios, television sets, cars, better homes and home furnishings, etc. Indirectly therefore, these consumers are bidding for the materials or resources used in making cars, radios, homes, television sets, etc. Among these materials are steel, lumber, chemicals, labor, and petroleum products. But these are also the materials used to produce farm tractors, machinery, buildings, fertilizer, tractor fuel, oil, and other farm supplies. Hence consumer demand keeps the costs of these materials up, and farm costs, as a consequence, are also kept up. Thus a second fact in the situation is that economic growth contributes to the mounting costs in farm production.

Increases in Agriculture's Capacity to Produce

As economic growth has taken place, we have experienced a startling increase in agriculture's capacity to produce.

A technological revolution has occurred in agriculture. Increases in yields per acre and per animal unit have been phenomenal. They have resulted in increasingly larger total production from an agriculture that employs somewhat more capital, about the same total land, but much less labor.

This increase in ability to produce has contributed to supplies of farm products considerably in excess of what the market can absorb. This accumulation in turn reflects the continued employment of too many total resources in agriculture. We are producing 8 percent more each year than can be sold at current prices. This percentage of oversupply is removed by the U. S. Government from normal market channels. A third fact in the situation, then, is the tremendous increase in our ability to produce food.

How Farmers React to the Agricultural Situation

Many farm people have responded by moving partly or entirely out of farming into nonfarm employment. Hence, one of the significant contributions of agriculture to the nation's economy is an increase in the manpower needed to fulfill the expanding demand for nonfarm products and services.

Basic Problems

(Continued from page 1)

But despite this movement out of farming, farm production continues in excess of that which can clear the market at current prices, and net farm incomes per farm continue to decline.

As a result of the mounting surpluses of farm products, the people still engaged in farming sometimes feel dejected about being efficient producers. No good reason really exists for their feeling this way. To the contrary, they should take pride in their accomplishment. One farm worker today produces enough food to support approximately 24 people. Twenty years ago he produced enough to support only 11. Moreover, as one of several millions of farm producers, the individual farmer at any given point in time has to accept prices, policy programs, and institutional arrangements as given and use the resources he controls to produce as much income as he can. In the short run he has no other choice. His short run income position is directly related to his efficiency as a producer.

But at the same time, being efficient in the sense of obtaining the largest output from the available resources doesn't solve the problem of imbalance between the level of total agricultural output and the demand for farm products. To solve this problem, the farmer needs to work collectively through his farm organizations and individually through his Congressmen to help forge policy programs that recognize the facts of the situation—the changes occurring both inside and outside of agriculture and the implications of these changes. He needs to learn all he can about these changes in order to function effectively as a citizen in a democracy.

He needs to learn about these changes, too, so as to make an economic use of his resources. Because as we experience economic growth, that is, as per capita incomes increase, some farm products are regarded with more favor than others. As economic growth takes place, our nation's consumers have been saying on a per capita basis that they prefer less cotton, less potatoes, less cereal products, but more processed fruits and vegetables, more dairy products exclusive of butter and more meat —especially lean meat. The individual farmer needs to keep abreast of these changes and adjust the use of his resources to them.

The Lake States Dairy Farm Adjustment Study

In 1959 research efforts were organized among several experiment stations with the USDA cooperating, to study dairy farming in the Lakes States Region. This study has two objectives: (1) to provide some guides to dairy farmers in organizing their farms for higher incomes, and (2) to provide some guides to dairy farmers and policy makers by indicating what may happen to total milk production and to the geographic pattern of this production as milk prices change.

This study is far enough along so that we can report on the findings which bear upon the first objective. The following article outlines some farm organization guides for one area in Minnesota. Later issues of *Farm Business Notes* will report on other areas in Minnesota. All of these area studies are being prepared in much greater detail for publication in bulletin form. When reading these reports and bulletins, the reader must keep in mind that the profit-maximizing farm plans as outlined may change somewhat as the second objective of this study is fulfilled.

Farm Adjustment Problems in East Central Minnesota

W. B. Sundquist and L. M. Day*

The figure shows one of several Minnesota areas in which adjustment possibilities have been studied for individual farmers. In this area are all of Morrison and Benton Counties; most of Mille Lacs, Kanabec, and Pine Counties; and smaller portions of Todd, Stearns, and Isanti Counties.

Primary soils in this area are of the Milaca-Brainerd, Wadena-Hubbard series with a lesser, though significant, amount of sandy soils. Much of the land is currently being used as permanent pasture or hayland, although some is moderately good cropland, particularly when used for the production of feed crops. Yields of corn and soybeans are substantially lower here than in the more commercial areas to the west and south.

The large amount of hay and pastureland and the limited possibilities for cash crops on many farms make livestock, particularly dairy, an important consideration in planning a profitable farm business.

Farm Resources Available

Thirty-six farmers selected at random were interviewed to determine their current farm practices and enterprises as well as to obtain an inventory of resources available for farm production. This information then served as a benchmark of existing resources and technology from which farm adjustment possibilities were considered.

Farms with similar production resources were grouped into three "typical" farm situations as follows:

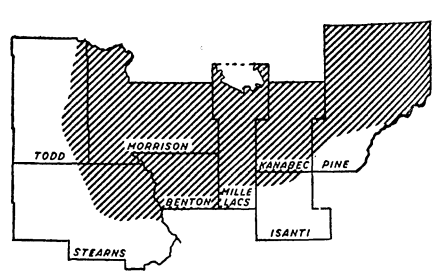
(1) Farms with 0-79 acres of cropland and less than 20 stanchions,
(2) Farms with 0-79 acres of cropland but with 20 stanchions or more, and
(3) Farms with 80 acres of cropland or more.

Resources available for each of these three typical farm situations are summarized in table 1. (See table 1.)

These "typical" farm situations are an average for several farms and do not represent the resource base on any farm exactly, since some differences in soil, buildings, equipment, etc. do occur between farms. Also, farmers have individual differences in experience, credit rating, managerial skills, and preferences. It should be helpful, however, to investigate the organizational and income possibilities of these resources with the management practices available to most farmers.

Alternatives Considered

By using a system of budgeting called "linear programming," it was possible to *project* the results on farm organization and income of several adjustment



INDICATES STUDY AREA

* Agricultural Economists, ERS, USDA.

possibilities for each of the "typical" farms. These possibilities included:

(1) Three different crop rotations using 40, 50, or 60 percent of the available cropland for corn and oats and the rest for alfalfa.

(2) Fertilization of these rotations at either of two levels—the current program of fertilizer use by farmers or the use recommended by the Soils Department of the University of Minnesota for the average soil test in this area. Either current tillage practices or a system of "minimum" tillage could be used. The system of minimum tillage in this case was only less intensive tillage using conventional machinery.

(3) A stanchion dairy enterprise with cows fed at any one of three rates of grain feeding (a) 1 lb. of grain for every 2.5 lbs. of milk, (b) 1 lb. of grain for every 4 lbs. of milk, and (c) 1 lb. of grain for every 6 lbs. of milk. Prices and resource requirements were those for milk sold for manufacturing uses.

(4) A beef cow-calf herd producing a 90 percent crop of 430-lb. calves.

(5) A cattle-feeding enterprise with 690-lb. steers purchased in the fall and roughed with limited grain for 10½ weeks and put on full feed in drylot for about 18 weeks before being sold with a gain of about 400 lbs.

(6) Systems of farrowing and feeding hogs with either single or two-litter farrowings or the purchase and feeding out of 35-lb. feeder pigs.

(7) If profitable, it was possible to purchase additional corn at $1.15 per bushel and to build additional livestock-housing facilities using capital up to the limits available in table 1. Forage supplies, however, were limited to those grown on the farm. If feed supplies or money to purchase feed supplies were available for livestock, it was assumed that the livestock could be purchased using credit *in addition* to the amounts shown in table 1.

Table 1. Resource availabilities

Resource	Unit	Farm 1	Farm 2	Farm 3
Cropland	acres	50	53	98
Open pasture	acres	60	54	42
Family labor	hrs. per yr.	3,606	4,117	4,771
Inventories*	dollars	4,740	5,980	5,580
Chattel credit†	dollars	2,240	3,060	6,330
Real estate credit†	dollars	3,460	5,590	4,680
Dairy stanchions	cows	12	23	27
Farrowing capacity	sows	3	6	5
Silo capacity	tons	60	90	130

* Includes inventory value of cash, livestock, and crops less the amount of money owed against these assets.

† The values of machinery and real estate assets were estimated by farmers. The credit availabilities shown here are *one-half* of the values of these assets *less* existing loans.

Table 2. Current and estimated optimal farm organizations

		Farm 1		Farm 2		Farm 3	
Item	Unit	current	opt.	current	opt.	current	opt.
Income*	dollars	2,780†	5,830	5,090†	6,950	6,630†	9,990
Cows milked	number	9	12	16	23	22	27
Ration fed	ratio	NK	1:4	NK	1:2.5	NK	1:4
Sows farrowed	number	3	3	4	5	5	5
Steers fed	number	0	82	0	36	0	104
Crop rotation	crops‡	COHH	COHHH	COHH	COHHH	COHH	COHHH
Credit used	dollars	650	21,420	1,400	15,290	6,080	36,820

NK = not known.

* This income is net of operating expenses and expansion costs but *has not* been adjusted for costs of taxes, depreciation on buildings and machinery, or interest on owned capital assets.

† Estimated from production data obtained from farmers.

‡ C = corn, O = oats, H = alfalfa hay.

Profitable Adjustments

Table 2 summarizes "current" and "most profitable or optimal" organizations and incomes estimated for the three typical farms mentioned earlier. Price estimates on which these organizations are based include $15.50 per cwt. for market hogs, $3.30 per cwt. for milk, and $21.50 per cwt. for good, fat cattle. Profitable farm organizations were computed for other prices for milk and hogs also but are not reported here. Cost items were set at 1959 price levels, except that machinery supplies and fuel were increased 10 percent and building expenses were increased 12 percent. (See table 2.)

For all three typical farms, the most profitable farm operations included fertilizing crops at recommended rates and using minimum tillage practices. Substantial dairy enterprises were profitable on all farms. Medium to heavy rates of grain feeding were profitable with milk selling for more than $2.50 per cwt. Adequate labor was available for the changes in farm organization shown in table 2, but the expansion of livestock enterprises used up most or all of the labor available in winter months. It was necessary in all of the most profitable farm organizations to purchase corn in addition to using up home-raised feed supplies.

Perhaps the biggest adjustment from current farm organizations was the profitable use of large amounts of credit to purchase and feed out cattle. Net incomes would be reduced about a thousand dollars for each of the two smaller farms and about twelve hundred dollars for the larger farm by shifting resources from feeder cattle into hogs. Credit requirements would, however, be greatly reduced by this shift. Individual farmers will find it profitable to assess their own experiences with feeding cattle and their ability to take price and income risks before borrowing large amounts of money to purchase feeder cattle. Also, these factors will likely determine in large part their ability to acquire the extensive amounts of credit necessary for the purchase of feeder cattle.

With the price of market hogs at $17 per cwt. or higher, it becomes profitable to expand a two-litter hog enterprise to 14 sows on the smallest farm, to 21 sows on the largest farm, and to *reduce substantially* the number of feeder cattle. Major livestock enterprises of some kind are necessary to provide satisfactory farm incomes on each of the three typical farms discussed here. Dairy and hog enterprises do, of course, utilize available labor with a lower capital requirement than does a feeder cattle enterprise. Although not considered specifically here, feeder pig and poultry enterprises are profitable considerations for some farms.

Purchase of additional feed supplies or an expansion in cropland coupled with expanded livestock enterprises are necessary adjustments to adequately improve the "size of business" and "income potential" for the farm situations considered here.

MINNESOTA

farm business

NOTES

Prepared by the Department of Agricultural Economics and Agricultural Extension Service.

Published by the University of Minnesota Agricultural Extension Service, Institute of Agriculture, St. Paul 1, Minnesota.

THE OUTLOOK CORNER

Part-Time Farmers

The number of part-time farmers has increased in Minnesota. Will this trend continue?

In 1934, 6 percent of the farmers in the state worked off their farms for 100 days or more. (See last line of table.) This has climbed steadily to 17 percent in 1959. There has been a comparable increase, about three-fold, in all parts of the state.

Part-time farming has been defined in this discussion as working off the farm for 100 days or more. This definition has been used for several reasons:

1. This amount of time away from the farm generally will interfere with the farm operation.
2. Comparable data are available for each U.S. Census of Agriculture back through 1934.
3. The comparisons of areas are similar to those which would have been obtained by defining as part-time those farmers who received as much or more income from off-farm work as they obtained from the sales of farm products.

More than one-half of the farmers in six northeastern counties work off their farms for 100 days or more. There has been a higher proportion of part-time farmers in this area than in other areas since 1934. The proportion of part-time farmers decreases as one moves southwestward through the state. Only 7 percent of the farmers in the southwestern counties worked off their farms for 100 days or more in 1959.

Part-time farmers fall into three groups:

1. Some of them hold nonfarm jobs, but prefer to live on a farm which also provides them with an opportunity to supplement their income.

2. Some have taken a nonfarm job but keep their farm residences and also operate their farms until they can become established on their new jobs. Such men are temporary part-time farmers and will eventually leave the farm.

3. A few farm on a part-time basis until they become established as full-time farmers.

Why has part-time farming increased? Some possible reasons are:

1. Farm costs have risen more rapidly than gross income. Many farmers who have been unable to increase the size or improve the efficiency of their business have looked to nonfarm jobs for extra income.

2. There has been a steady growth in the number of jobs available.

3. Improvements in roads and the increased willingness of people to drive considerable distances to work have made it possible for more people to live on a farm and work in town.

4. Many farmers who have decided to work off the farm have preferred not to move their families until they are well established in their new jobs.

The causes for the geographical differences in part-time farming are closely related to the variations in both farm income opportunities and the number of nonfarm jobs available. For example, opportunities for satisfactory farm earnings are limited in the northeastern counties, where soils and climate are less favorable than in the other parts of the state. There are, however, many nonfarm opportunities in the northeastern area—in the mines, forests, and resorts; in Duluth; and in other towns and cities. The situation is reversed in the southwestern counties, with good farming opportunities and a limited number of nonfarm jobs.

Will part-time farming continue to increase? It probably will, for a few years at least, for these reasons:

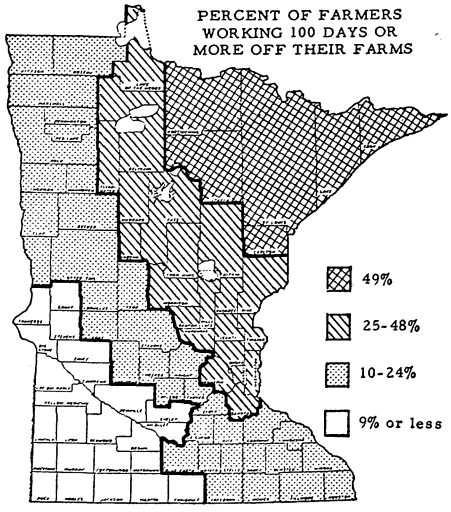
1. A movement of people away from the farm is likely to continue.
2. Improvements in highways will continue to make it easy for workers to commute from a farm.

However, the increasing capital and management required for successful operation of a farm will tend to force a decision between full-time farming and no farming.

Percent of Minnesota farmers who worked off their farm for 100 days or more

Area*	1959	1954	1944	1934
Northeast	53	52	42	18
North central and east central	31	27	13	9
Northwest, central, and southeast	15	12	5	4
Southwest	7	5	2	2
State	17	15	10	6

* See map.
Source: U.S. Census of Agriculture.



Cooperative Extension Work in Agriculture and Home Economics, University of Minnesota, Agricultural Extension Service and United States Department of Agriculture Cooperating, Skuli Rutford, Director. Published in furtherance of Agricultural Extension Acts of May 8 and June 30, 1914.

Agricultural Extension Service
Institute of Agriculture
University of Minnesota
St. Paul 1, Minnesota
SKULI RUTFORD, Director
Cooperative Agricultural Extension Work, Acts of May 8 and June 30, 1914
OFFICIAL BUSINESS
4-61 2500

PENALTY FOR PRIVATE USE TO AVOID PAYMENT OF POSTAGE, $300